CENTER FOR

ELECTRONIC MEDICAL EDUCATION

CENTER

UNIVERSITY OF UTAH

The Center for Electronic Medical Education (CEME) is part of the Electronic Medical Education Resource Group (EMERG) at the University of Utah Health Sciences Center (UofU). The focus of this Center is to develop component software technology for use by physicians and scientists in image intensive fields, specifically targeted at annotation and knowledge representation. Initially, the software consisted of author tools for medical case creation and information management of image intensive data for publishing web-based clinical reference material. In fiscal year 2002, the original technology development was extended into decision support and evidenced-based medicine solutions, biomedical imaging and bioinformatics. CEME established itself as a multidimensional technology hub by extending technology development into three additional markets. Those markets are: 1) cross-media publishing and digital content distribution, 2) electronic medical records (EMR) , specifically collection of expert knowledge and annotation of visual data as part of the clinical workflow, and 3) biomedical/biotechnology imaging informatics.

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ACCOMPLISHMENTS

As part of our objectives, CEME has adopted an intellectual property strategy of maximizing commercial potential by decomposing CEME technologies into as many individually licensable pieces as possible. This strategy recognizes that software applications developed for medical publishing contain intellectual property threads that can be pulled out into individual invention disclosures and woven into new combinations to meet market needs. The additional markets lead to new commercial entities that push the technology into new markets.

The following is a list of accomplishments:

A commercial spin-off, AMIRSYS, Inc., that produces electronic reference material.

A right to use license with AMIRSYS, Inc. for UofU image content.

Established the CEME as a multidimensional technology hub that addresses the needs of image integration in the electronic medical record and field of biomedical imaging informatics.

Strategic positioning of CEME technology with key industry participants that has resulted in a Memorandum of Understanding and Teaming Agreement to get CEME technology into Battlefield Telemedicine.

Patent on the core technology.

CEME technology generated multiple invention disclosures as part of a multidisciplinary collaboration and technology development effort.

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A new commercial spin-off company, Resilient Imaging, that is a services-based company for integration of annotation and knowledge representation technology.

Two SBIR grants have been submitted to the NIH National Institute for Biomedical Imaging and Bioengineering and the NIH National Cancer Institute for further development of CEME technology.

Resilient Imaging is in the process of negotiating a non-exclusive license for the CEME technology and patent with the Technology Transfer Office at the University of Utah.

TECHNOLOGY

CEME technology provides clinicians and basic scientists with knowledge representation tools built on the need to visually annotate (identify and label) images and add expert clinical knowledge (e.g., diagnosis, pathology report or clinical note) image data in the healthcare enterprise. The technology enables collaboration and sharing of results at each stage of the clinical management of a patient or clinical study, and provides a mechanism to track multiple images that are generated from multiple imaging modalities that exist in disparate file systems across the research and healthcare enterprise. CEME technology was developed in response to the critical need to capture the growing and evolving base of imaging results and expert knowledge, so that downstream experts can utilize previous results. The goal is to improve the process of scientific discoveries and healthcare by developing technology for the purposes of consistent, context-appropriate communication and collaboration, standardization and interoperability of clinical tools and interactive presentation of data.

CEME technology solutions facilitate the incremental and collaborative collection of expert knowledge in the form of non-destructive visual annotations and text that readily make the collected information available to other experts. The following list outlines the benefits of CEME technology:

Reduces repetition of work by image re-interpretation. Gives physicians and scientists the ability to incrementally add expert knowledge. Supports multi-specialty authoring of single images. Enables sharing of images and applied expert knowledge. Reduces replication of reference images that complicates storage and retrieval. Developed technology uses visual annotations that are not embedded in the images and subsequently do not alter or destroy the image data (i.e., image pixels). Provides the ability to integrate lexicons and medical vocabularies. Structured textual information with image information. Provides a solution to link image and expert knowledge. Interactive, instructive representation of multi-specialty expert knowledge. Enables physician-physician, physician-scientist and physician-patient interaction..